



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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MAR 24 1993

FACSIMILE TRANSMISSION

Dear Mr. Weston:

On March 19, 1993, BCM Engineers faxed the proposed changes to the Feasibility Study regarding the cleanup goals for the Occidental Chemical Pottstown Site. EPA has reviewed the proposed text and has determined that it is not acceptable.

Occidental has not demonstrated that achieving Pennsylvania's ARAR for groundwater remediation is infeasible. Due to uncertainties inherent to groundwater modeling and the lack of performance monitoring data associated with aquifer and plume response to the remedial extraction system, EPA cannot invoke an ARAR waiver based on technical impracticability at this time. As a result, the Pennsylvania ARAR for background (or MDLs) will remain as the goal for groundwater remediation at the Occidental Site in Pottstown. However, the Record of Decision for the site will include a provision that allows for demonstration of technical impracticability for achieving these goals by Occidental to EPA based on data collected during operation of the extraction system.

I have attached the remaining revisions that must be incorporated into the RI/FS for EPA approval. As I stated in my March 9, 1993 letter, it was agreed that once the discussions on the RI/FS were finalized, Occidental would submit the final report within 7 days. This correspondence concludes the discussions on the RI/FS. Therefore, the final RI/FS Report with Appendices is due no later than March 31, 1993.

Sincerely,

Linda Dietz  
Remedial Project Manager  
Central PA Section

Enclosure

AR308107

cc: Rodney Carter (3RC21)  
Nancy Cichowicz (3HW13)  
Nancy Rios (3HW13)  
David Kennedy, PADER  
Dan Erdman, BCM

AR308108

During the "Risk Assessment" conference call with BCM it was discussed that the Residential Exposure Scenario must be evaluated for the Earthen Lagoon Soils. In the Risk Assessment correspondence dated February 18, 1993, Occidental responded that this evaluation is not required because there is no potential future exposure to the earthen lagoons. At this point, EPA has not selected the remedy for the Earthen Lagoons and there is no guarantee that they will be removed. Therefore, the Residential Exposure Scenario is a possibility in the future and must be evaluated.

## 2.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES FOR GROUNDWATER

### 2.1 OVERVIEW

The preliminary screening steps of the FS for the bedrock aquifer are presented in this chapter and include: (1) the definition of remedial action objectives and general response actions, (2) identification of potential, applicable remedial technologies, and (3) screening of those technologies for subsequent incorporation into alternatives.

### 2.2 REMEDIAL ACTION OBJECTIVES

The remedial action objectives for the bedrock aquifer remediation are based on: (1) CERCLA and NCP requirements to protect human health and the environment, (2) the Superfund Amendments and Reauthorization Act of 1986 (SARA), and (3) the specific findings of the Site RI and risk assessment. Site and regional conditions were considered in the selection of remedial objectives. The remedial action objectives have been established based on chemicals and media of concern, potential exposure pathways, and remediation goals.

#### 2.2.1 Objectives

Based on the groundwater risk and characterization of the aquifer, the following remedial action objectives have been established:

- Restore groundwater in the bedrock aquifer to Federal and State Applicable, Relevant, and Appropriate Requirements (ARARs), including drinking water standards, and to a level that is protective of human health and the environment, ~~or to a steady state condition where no improvement is observed (i.e., an asymptotic reduction of chemical concentrations) and when it becomes obvious to concerned parties that further pumping is not productive. If restoration of the bedrock aquifer to ARARs is determined not to be achievable, pumping of the groundwater will continue to prevent migration of the chemical plume.~~
- Prevent ingestion of groundwater having either concentrations of carcinogens in excess of drinking water standards or a total carcinogenic cancer risk for all chemicals of greater than  $10^{-4}$ .
- Prevent ingestion of groundwater having concentrations of non-carcinogens in excess of drinking water standards or having a total HI index of greater than 1.
- Protect non-impacted groundwater and surface water for current and future use.

Delete

INSERT (A)

#### The Safe Drinking Water Act (SDWA)

The promulgated National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) (40 CFR Part 141) provide standards for 30 compounds, including the 14 compounds adopted as RCRA MCLs. MCLs have been adopted as enforceable standards for public drinking water systems. The basic jurisdictional prerequisite for MCLs is that they apply to "public water systems," defined as systems for the provision of piped water for human consumption with at least 15 service connections or serving at least 25 persons.

SDWA requirements may be relevant and appropriate for remedial actions involving groundwater monitoring, recovery, and treatment. The applicability to the Pottstown Site exists only in a future risk assessment scenario (see Appendix 7 of RI report) where groundwater is assumed to be allowed to migrate offsite. Currently, the controlled plume is not hydraulically upgradient to any portion of the bedrock aquifer utilized for a public water system.

MCLs are established as remediation goals for the bedrock aquifer. Attainment of more restrictive levels, such as "below detection limits" as often requested by PADER as cleanup goals, are not practical. Such goals are impractical because detection limits change as analytical technology improves and because efficiency of remediation decreases asymptotically as a zero concentration is approached. MCLs as remediation goals are provided on Table 2-2, along with concentrations of chemicals of concern at the site.

#### Safe Drinking Water Act MCL Goals

MCL Goals (MCLGs) (formerly known as recommended MCLs or RMCLs) are non-enforceable health goals for public water systems. MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs for substances considered to be probable human carcinogens are set at the zero level, and MCLGs for substances that are not probable human carcinogens are set based upon chronic toxicity or other data. The MCLGs for 1,2-trans-DCE, styrene, and ethylbenzene are equivalent to their MCLs. The MCLGs for TCE and VCM are zero.

#### Safe Drinking Water Act Secondary Maximum Contaminant Levels

National Secondary Drinking Water Regulations are established pursuant to section 1412 of the Safe Drinking Water Act, as amended (42 U.S.C 300g-1). These regulations concern chemicals in drinking water that primarily affect the aesthetic qualities relating to the public

- Class II: Current and Potential Sources of Drinking Water and Waters Having Other Beneficial Use - Includes all other groundwaters that are (A) currently used or are (B) potentially available for drinking water or other beneficial use.
- Class III: Groundwater Not Considered Potential Sources of Drinking Water and of Limited Beneficial Use - Waters that are highly saline, i.e., they have total dissolved solids (TDS) levels over 10,000 mg/l, or otherwise contain chemicals beyond levels that allow cleanup using methods reasonably employed in public treatment systems. These groundwaters also must not migrate to Class I or II groundwaters or have a discharge to surface water that could cause degradation.

INSERT

(B)

~~The bedrock aquifer in its current state is considered as Class III because it is not a source of drinking water, nor does it discharge to surface water, as its migration is controlled by onsite pumping.~~

#### ~~Pennsylvania Clean Streams Law~~

~~This establishes an enforceable law intended to reclaim and restore polluted streams through water quality control. Any remediation which includes discharge to surface water considers this law.~~

#### Pennsylvania Wild and Scenic River Act of December 5, 1972

The Act provides that no department or agency of the United States shall assist in the development of any water resources project that would have a direct adverse affect on the river. The Schuylkill River is on the list of wild and scenic rivers in Pennsylvania.

#### Delaware River Basin Commission (DRBC)

The DRBC was formed to regulate all water uses within the Delaware River Basin, which includes the Schuylkill River. Withdrawal of groundwater for purposes of remediation is also governed by the DRBC.

#### 2.2.2.4 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes. These requirements are triggered by the particular remedial activities that are selected to accomplish a remedy. Since there are usually several alternative actions for any remedial site, very different requirements can come into play. These action-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative can be achieved.

(A)

### Safe Drinking Water Act (SDWA) MCLs and MCLGs

The promulgated National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) (40 CFR Part 141) provide standards for at least 60 compounds, which are enforceable for public drinking-water supply systems. The basic jurisdictional prerequisite for MCLs is that they apply to "public water systems," defined as systems for the provision of piped water for human consumption with at least 15 service connections or serving at least 25 persons. In addition to health considerations, MCLs are derived based on "feasibility" factors, such as best available technology and cost of implementation.

MCL Goals (MCLGs) are non-enforceable guidelines for public water systems, which are set at levels that would not result in known or anticipated adverse health effects considering an adequate margin of safety. MCLGs for contaminants to be probable human carcinogens are set at zero, while MCLGs for contaminants that are probably not carcinogenic are set based on chronic toxicity or other data.

MCLs and non-zero MCLGs would be considered relevant and appropriate for remedial actions involving groundwater at the Pottstown site because the contaminated groundwater could potentially be used for drinking water and other uses. However, the Superfund Amendments and Reauthorization Act (SARA) specifically requires that MCLs be considered applicable. Table 2-2 lists MCLs and MCLGs for contaminants in groundwater during the baseline risk assessment for the Pottstown site.

(B)

Since the bedrock aquifer would be considered a Class IIB aquifer, the Groundwater Protection Strategy Policy should be considered for site remedial actions.

Occupational Health and Safety Act (OSHA) Regulations (29 CFR Parts 1904, 1910, and 1926).

OSHA regulations provide occupational safety and health requirements applicable to workers engaged in onsite field activities. The regulations are applicable to onsite work performed during implementation of a remedial action.

DOT Rules for Hazardous Materials Transport (49 CFR Parts 107 and 171-179)

The DOT rules regulate the transport of hazardous materials, including packaging, shipper equipment, and placarding. These rules are applicable to wastes such as those shipped offsite for treatment or disposal. Potential applications of the DOT rules apply to the Site if treatment residuals are transported for disposal offsite.

General Pretreatment Regulations (POTW)

These regulations promulgate enforceable standards under 40 CFR Part 403 for discharge to publicly-owned treatment works (POTW). These regulations are applicable if recovered groundwater is discharged to a POTW.

OCPSF (Organic Chemicals, Plastics, and Synthetic Fibers)

OCPSF regulations promulgate enforceable standards under 40 CFR Part 414 for indirect discharge to a POTW or direct discharge to a receiving stream, which are considered as discharge alternatives later in this report. Standards applicable to chemicals found in the groundwater are summarized on Table 2-4.

Pennsylvania Solid Waste Management Act

This Act regulates the storage, treatment, disposal, and transportation of solid and hazardous wastes, which may be applicable to wastewater treatment residuals from groundwater remediation.

Pennsylvania Solid Waste Regulations

The regulations govern the generation, transportation, storage, and disposal of hazardous and nonhazardous solid wastes. Regulations are applicable to remedial actions, including offsite hauling and disposal, incineration, and temporary storage. These may be applicable to the Site for wastewater treatment residual disposal.

INSERT (C)



(C)  
Pennsylvania Clean Streams Act

The Pennsylvania Clean Streams Law provides for the protection of streams and water quality control. The objective of the law is to protect streams and other "waters of the Commonwealth," including groundwater. Pennsylvania's groundwater quality protection program is described in the PA Department of Environmental Resources (PADER) Ground Water Quality Protection Strategy dated February 1992. The ultimate goal of this program is nondegradation of groundwater. Accordingly, this program will seek the highest level of groundwater remediation achievable with current resources and technology.

TABLE 2-1

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)  
AND TO BE CONSIDERED (TBC) STANDARDS  
FOR GROUNDWATER

OCCIDENTAL CHEMICAL CORPORATION  
POTTSTOWN, PENNSYLVANIA

ARAR	Legal Citation	Potential Legal Classification	Explanation of Classification	Applicability to FS Options
<u>Federal-Contaminant</u>				
1. Safe Drinking Water Act				
a. Maximum Contaminant Levels (MCLs)	40 CFR 141.11-12	Applicable <del>Relevant and Appropriate</del>	Enforceable standards for public drinking water supply systems (at least 25 persons)	Applicable as <del>Relevant and appropriate as a guidance to clean up levels to be achieved by CERCLA remedial actions. However, a well survey indicated that groundwater is not used as a public drinking water source within 1/2 mile of the site.</del>
b. Maximum Contaminant Level Goals (MCLGs)	40 CFR 141.50-51	Applicable <del>Relevant and Appropriate</del>	Non-enforceable health goals for public water	Non-zero MCLGs are relevant and appropriate standards for drinking water source. However, a well survey indicated that groundwater is not used as a public drinking water source within 1/2 mile of the site.
c. Secondary Maximum Contaminant Levels	40 CFR 143	To Be Considered	Non-enforceable guidelines for public drinking water systems	Secondary MCLs are relevant and appropriate standards for drinking water source are primarily aesthetic water quality standards and probably not applicable to FS since groundwater is not used as a drinking water source.
2. Clean Water Act				
a. Federal Water Quality Criteria (FWQC) for Protection of Human Health	EPA 44/5-86-001 33 U.S.C. S.1314(a)(1) (as amended)	To Be Considered	Non-enforceable guidance developed under Clean Water Act and used by the state, in conjunction with a designated use for a stream segment to establish water quality standards	To be considered if there is a discharge to a stream that may affect aquatic organisms or human exposure from drinking the water and from consuming aquatic organisms
b. Ambient Water Quality Criteria for Protection of Aquatic Life	33 U.S.C. S.1314(a)(1) (as amended)	To Be Considered	Non-enforceable criteria used to develop standards	To be considered for actions that involve groundwater treatment and discharge to surface water

TABLE 2-1 (Continued)

ARAR	Legal Citation	Potential Legal Classification	Explanation of Classification	Applicability to FS Options
3. EPA Health Advisories	EPA Office of Drinking Water	To be Considered	Non-enforceable guidelines for public water supply systems	To be considered for remedial actions involving groundwater monitoring, recovery, and treatment
<u>State-Contaminant</u>				
1. Pennsylvania Water Quality Standards	PA Code Title 25, Chapter 93	Applicable	Sets quality for the waters in the state	Remedial actions may include discharge to groundwater and/or surface waters.
2. Pennsylvania Hazardous Substances Transportation Regulations	PA Code Title 13 (Flammable Liquids and Flammable Solids) and Title 15 (Oxidizing Materials, Poisons, and Corrosive Liquids)	Applicable	Regulates shipments of hazardous wastes.	Applicable to wastes shipped offsite for analysis, treatment, or disposal during remediation.
<u>Federal-Location</u>				
1. RCRA Location Requirements	40 CFR Part 264	To Be Considered	Limitations on onsite storage, treatment or disposal of hazardous waste	To be considered when remedial actions involve onsite actions.
2. EPA Groundwater Protection Strategy	Final Draft 1986	To Be Considered	EPA policy regarding protection of groundwater resources for its highest present or beneficial use	Remedial actions must consider EPA classification of groundwater conditions at the site.
<u>State-Location</u>				
<del>1. Pennsylvania Clean Streams Law</del>	<del>PA Code Title 35, Chapter 5</del>	<del>Applicable</del>	<del>Enforceable law intended to reclaim and restore polluted streams through water quality control.</del>	<del>Remedial actions may include discharge to surface waters.</del>
1. Pennsylvania Wild and Scenic Rivers Act of December 5, 1972	Act No. 283	Applicable	Provides that no department or agency of the United States shall assist in the development of any water resources project that would have a direct adverse affect on the river.	Remedial actions may include discharge to the Schuylkill River.
2. Delaware River Basin Commission	Resolution 80-18	Applicable	Governs withdrawal of groundwater in conjunction with state regulatory agency.	Applicable to remedial actions involving a withdrawal of groundwater.
<u>Federal Action</u>				
1. RCRA				
a. Hazardous Waste Requirements	40 CFR Part 261, 264, and 270	Applicable	Standards applicable to treating, storing, and disposing of hazardous waste.	Remedial actions may include offsite disposal of treatment residuals.

TABLE 2-1 (Continued)

ARAR	Legal Citation	Potential Legal Classification	Explanation of Classification	Applicability to FS Options
b. Land Disposal Restrictions	40 CFR 268	To Be Considered	Imposes land disposal restrictions on all characteristic and listed hazardous wastes.	Remedial actions may involve land disposal of treatment residuals.
2. Clean Water Act NPDES Permit	33 USC 1251	To Be Considered	Regulates concentrations of listed contaminants in treated wastewaters	To be considered for remedial actions that involve discharge of treated water to surface water.
3. General Pretreatment Regulations for Existing and New Sources of Pollution	40 CFR 403	Applicable	Standard for discharge to to Publicly-Owned Treatment Works (POTW)	To be considered should remedial actions entail discharge to POTW.
4. OCPSF Regulations	40 CFR 414	Applicable	Enforceable standards for discharge to a POTW for organic chemicals, plastics, and synthetic fibers manufacturers.	Applicable to the Pottstown facility for POTW discharge.
5. Clean Air Act	42 U.S.C. S.7401	Relevant and Appropriate	Regulates concentrations of listed chemicals in air discharges	Relevant and appropriate for remedial actions that involve releases to the ambient environment.
6. Occupational Safety & Health Act (OSHA) Requirements	29 CFR, Parts 1904, 1910, 1926	Applicable	Provides occupational safety and health requirements for workers engaged in onsite field activities	Applicable to onsite work performed during implementation of remedial actions.
7. DOT Rules for Hazardous Materials Transport	49 CFR, Parts 107 and 171-179	Applicable	Regulations for transport of hazardous materials.	Applicable to wastes shipped offsite for treatment or disposal.
<u>State-Action</u>				
1. Pennsylvania Solid Waste Management Act	Act 97	Applicable	Regulations for proper management of solid wastes	Applicable to remedial actions involving storage, collection, transportation, processing, treatment and disposal of solid waste
2. Pennsylvania Solid Waste Regulations	PA Code Title 25, Chapter 75	Applicable	Regulations for the planning and management of solid waste and hazardous waste	Applicable to remedial actions involving handling of solid and/or hazardous waste.
X 4. Water Quality Toxics Management Strategy	PA Code Title 25, Chapter 16	Applicable	Provides receiving stream water quality criteria for toxic substances.	Applicable to surface water discharges from treatment systems.
X 5. Pennsylvania Pollutant Discharge Elimination System (NPDES) Rules	PA Code Title 25, Chapter 92	Applicable	Regulates all point source discharges into navigable waters except as authorized by the appropriate permit.	Remedial actions may include discharge to surface waters.
3. Pennsylvania Clean Streams Act	PA Code Title 35, Chapter 5	Applicable	Provides protection of streams and waters of the Commonwealth including groundwater	Applicable to remedial actions involving groundwater and surface water

TABLE 2-2  
~~REMEDIAL GOALS~~  
 Federal MCLs and MCLGs

CHEMICAL	MAXIMUM GW CONCENTRATION (mg/L)*	95% UCL GW CONCENTRATION (mg/L)**	MCLs <del>ARARS</del> (mg/L)	MCLG (mg/L)
Antimony	3.0E-02	1.4E-02	1.0E-02 ✓	6.0E-3
Arsenic	6.0E-02	1.6E-02	5.0E-02	-
Chromium	2.8E-01	7.1E-02	1.0E-01	1.0E-1
Manganese	1.9E+00	5.3E-01	5.0E-2***	-
2-Butanone (MEK)	1.9E+00	5.6E-01	9.0E-1***	-
Carbon Tetrachloride	2.7E+00	2.7E-02	5.0E-03	zero
Chloroform (THM)	1.4E-01	2.6E-02	1.0E-01	-
1,1-Dichloroethene	1.3E-01	1.6E-02	7.0E-03	7.0E-3
Toluene	1.9E-02	1.6E-02	1.0E+00	1.0E+00
Benzyl Alcohol	9.8E-01	2.2E-01	-	-
Di-n-octyl phthalate	2.0E-03	1.3E-03	-	-
Phenol	4.0E-03	1.8E-03	-	-
CHEMICAL	MAXIMUM GW CONCENTRATION (mg/L)***	AVERAGE GW CONCENTRATION (mg/L)****	ARARS (ug/L)	
1,2-Dichloroethene (Total) (TVang)	1.6E-01	4.2E-02	2.0E+01 -	-
Ethylbenzene	2.5E+01	1.9E+00	1.0E-01	1.0E-1
Styrene	2.0E+01	4.0E+00	7.0E-01	7.0E-1
Trichloroethene	1.1E+02	7.3E+00	1.0E-01	1.0E-1
Vinyl Chloride	9.1E+01	4.7E-01	5.0E-03	zero
	2.6E+00	3.0E-02	2.0E-03	zero

\* Maximum values from CLP analysis.

\*\* Values derived from concentrations measured in all bedrock wells.

\*\*\* Maximum values from CLP analysis or Packer Test.

\*\*\*\* Values derived from concentrations measured in all bedrock wells within the delineated plume using both CLP and Packer Test data.

~ MCLs

^^ Drinking water equivalence level

^^^ Secondary MCL

Please prepare a new section 3.1.3 that discusses restoration goals and timeframes, and includes the information provided in the fascimile dated March 19, 1993. Please refer to RGs as PRGs (preliminary remediation goals), and make other revisions as shown on the attached pages, as appropriate, in the new section.

R-2-2 (EPA)

EPA disagrees that "no practical remedial alternative could be conceptualized and the FS would conclude that remediation was unfeasible". As was stated in EPA's letter of February 12, 1993, it is OxyChem's responsibility to present to the EPA the information which demonstrates that achieving background is impractical for this site. This does not mean that an alternative to achieve background concentrations cannot be conceptualized. OxyChem must recognize that the State's ARAR can be "attempted" and that a remediation system can be designed to capture the plume which exceeds background concentrations (or MDLs). OxyChem must present this alternative so that EPA can select the alternative which is most protective, attains ARARs and is cost effective and practicable. In addition, the MDLs quoted in your responses are incorrect. The correct MDLs were attached to EPA's February 12 response.

R-2-2 (OXY)

The following has been added to end of Section 2.2.1 (Remedial Action Objectives), in addition to the first 2 of 3 paragraphs which were added previously in response to the original comment C-2-2. The third paragraph previously inserted has been deleted.

PRGs [Preliminary  
Remediation  
Goals]

"The MDLs quoted in the above paragraphs are those which are generally associated with the CLP analyses used on RI/FS projects. Lower detection levels are possible using non-CLP methods, such as Method 601/602. EPA (40 CFR, Part 136) gives MDLs in reagent grade water for the 5 VOCs of concern at this site, and also provides formula to calculate expected MDLs on non-reagent grade aqueous samples, such as would be encountered in groundwater at this site. A comparison of these MDLs with the ~~RGs~~ are shown on the table below.

	PRGs (RG) (ug/l)	MDL (ug/l)	
		601/602 Reagent Water	601/602 Environmental Sample
TCE	5	0.12	0.33
trans-1,2-DCE	100	0.10	1.62
VCM	2	0.18	0.44
Ethylbenzene	70	0.20	0.28
Styrene	10	0.27	NA

"The groundwater recovery program developed with the use of modeling, and presented in Appendix A to this FS report, represents the most time-efficient and technically implementable alternative for groundwater remediation at this site, regardless of whether an MDL or the MCL is considered as a remedial objective. The goal of the modeled groundwater recovery program can be considered as the MDL, though the model predicts that this best effort remedial alternative will not achieve the MDL for TCE (the most widespread chemical in the groundwater) within a 100-year timeframe. The table below shows the anticipated concentrations for each of the 5 VOCs at 25 year intervals during the remedial program.

	<u>Concentrations (ug/l)</u>			
	<u>25 yrs.</u>	<u>50 yrs.</u>	<u>75 yrs.</u>	<u>100 yrs.</u>
TCE	148	43	13	4.1
trans-1,1-DCE	ND	ND	ND	ND
VCM	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Styrene	17	ND	ND	ND

"The above concentrations were calculated using the methodology described in the Appendix A Modeling Report. The concentrations calculated for all chemicals except TCE are below the MDL at 50 years. At 25 years of pumping, only styrene and TCE are expected to be detectable.

"The associated residual risks with the concentrations calculated above are shown on the table below at 25-year intervals during the remedial program.

	<u>Residual Risks During Remediation</u>			
	<u>25 yrs.</u>	<u>50 yrs.</u>	<u>75 yrs.</u>	<u>100 yrs.</u>
Residual Risk (total)	$7.2 \times 10^{-5}$	$1.8 \times 10^{-5}$	$5.5 \times 10^{-6}$	$1.7 \times 10^{-6}$
TCE Only	$6.2 \times 10^{-5}$	$1.8 \times 10^{-5}$	$5.5 \times 10^{-6}$	$1.7 \times 10^{-6}$

Based on modeling predictions,  
 "Acceptable risk for domestic groundwater use is between  $1.0 \times 10^{-4}$  and  $1.0 \times 10^{-6}$ . The remedial program will reach this objective within 25 years, <sup>but</sup> ~~The program~~ cannot reduce the concentration of TCE to a Method 601/602 MDL within 100 years of operation. Within that risk range predicted



timeframe, however, TCE will be reduced to a level below its current MCL, and the other 4 VOCs will be non-detect. ~~It is technically impractical to discuss a remediation program beyond a 100-year timeframe and, therefore, an achievable and acceptable remedial objective (i.e., the MCL for TCE) is used in this FS.~~ } delete

Several conclusions relative to remedial objectives and remedial planning are evident from the calculations and discussions above can be used in and support of applying a Waiver of Technical Impracticability. These include:

- (1) After 25 years, only styrene and TCE will be detectable in the groundwater. delete
- (2) At 50 years, TCE alone will be detectable.
- (3) Residual risk at 25 years is based primarily on TCE, with a small risk contribution from styrene. By the 50th year, TCE is the sole contributor to residual risk.
- (4) The total residual risk at 25 years is  $7.2 \times 10^{-5}$ . The risk falls below  $1.8 \times 10^{-5}$  at 75 years, and to  $1.7 \times 10^{-5}$  at 100 years.